

**REMARKS**

The office action dated 1/30/2003 was made final responsive to the applicant's amendments. Consequently applicant has filed this reply with a RCE.

Claims 1 and 3-13 are pending.

Claims 1 and 3-13 stand rejected.

Reconsideration of the rejections set forth in the Office action dated 1/30/2003 is respectfully requested under the provisions of 37 CFR §1.111(b).

Claims 1 and 3 were amended. Claim 1 was amended to make it broader. Claim 3 was amended to make it more clear.

***I. Rejections under 35 USC §103(a)***

Claims 1, 3, 4 and 9 stand rejected under 35 USC §103(a) as being unpatentable over Bowers in view of Harvey. This rejection is respectfully traversed in view of the arguments following.

Claims 5-8 and 10-13 stand rejected under 35 USC §103(a) as being unpatentable over Bowers in view of Harvey as applied to claim 1 and further in view of Moran. This rejection is respectfully traversed in view of the arguments following.

**A. The claimed Invention**

The claimed invention addresses the problem of identifying and tracking tags distributed in a room. The invention solves this problem by playing a laser beam over the objects in a room by a laser base station (scanning the room). Some of these objects have a tag that react when illuminated by laser light. Thus, when the light from the laser beam illuminates the tag, the tag responds by providing informational content. When the tag responds, the angular position of the laser beam is captured as well as the information from the tag. Thus, after the laser base station is activated, information from each tag

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that can be illuminated by the laser base station can be stored along with the angular position of the laser beam with respect to the base station.

One aspect of the invention is captured in claim 1:

1. (currently amended) A system for identification and tracking of tags distributed in a room, the system comprising,  
a laser base station for scanning laser beams through a portion of the room,  
a tag reactive to incident laser beams to provide a data signal, and  
a tag tracking system receiving input from the laser base station, the tag tracking system storing state records of position and informational content of the tag,  
wherein the tag tracking system determines angular position of the tag with respect to the laser base station.

If two base stations are used, an absolute position of the tag can be determined.

This aspect of the invention is captured in amended claim 3:

3. (Currently Amended) A system for identification and tracking of tags distributed in a room, the system comprising,  
at least two laser base stations,  
a tag reactive to incident laser beams to provide a data signal, and  
a tag tracking system receiving input from the at least two laser base stations,  
the tag tracking system storing state records of position and informational content of the tag,  
wherein the tag tracking system determines absolute position of the tag in the room based on the input from the at least two laser base stations.

### **B. Prior Art**

**Bowers.** The Bowers reference discloses an "Inventory System Using Articles with RFID Tags" that provides stations where articles having attached RFID tags can

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One aspect of the invention is captured in claim 1:

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a laser base station for scanning laser beams through a portion of the room,  
a tag reactive to incident laser beams to provide a data signal, and  
a tag tracking system receiving input from the laser base station, the tag tracking system storing state records of position and informational content of the tag,  
wherein the tag tracking system determines angular position of the tag with respect to the laser base station.

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This aspect of the invention is captured in amended claim 3:

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that can be illuminated by the laser base station can be stored along with the angular position of the laser beam with respect to the base station.

One aspect of the invention is captured in claim 1:

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a laser base station for scanning laser beams through a portion of the room,  
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wherein the tag tracking system determines angular position of the tag with respect to the laser base station.

If two base stations are used, an absolute position of the tag can be determined. This aspect of the invention is captured in amended claim 3:

3. (Currently Amended) A system for identification and tracking of tags distributed in a room, the system comprising,  
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a tag reactive to incident laser beams to provide a data signal, and  
a tag tracking system receiving input from the at least two laser base stations, the tag tracking system storing state records of position and informational content of the tag,  
wherein the tag tracking system determines absolute position of the tag in the room based on the input from the at least two laser base stations.

### **B. Prior Art**

**Bowers.** The Bowers reference discloses an "Inventory System Using Articles with RFID Tags" that provides stations where articles having attached RFID tags can

have the information in the RFID tag scanned. In each embodiment the articles having the tag is brought to the scanning station or the scanning mechanism is brought to the article (see Bowers Figs. 9-11 and discussion at Col. 6, line 21 through Col. 16, line 39 and Col. 16, lines 54-67) --- either the article or the scanning mechanism must be moved into proximity with the other.

In the system of the claimed invention, neither the articles nor the base station need be moved, nor do the articles and the base station need to be in proximity. The laser beam from the laser base station scans the room and when a tag is illuminated by the laser beam, information is provided that is associated with the angular position of the laser beam. The tag can be passive or active.

Nothing in Bowers teaches or suggests a laser base station that scans a portion of a room, a tag reactive to laser beams to provide a data signal, a tag tracking system that receives input from the laser base station, or a tracking system that determines the angular position with respect to the laser base station or absolute position of the tag.

Bowers does not teach the invention of claims 1 or 3. Furthermore, Bowers does not suggest the invention of claims 1 or 3.

**Harvey.** The Harvey reference discloses technology for using lasers to project two orthogonal reference lines on a target that can rotate in three axis and that can translate in two axis. The target includes reference dots. The image of the target (that is reflecting the laser-generated reference lines) is captured by a camera. By analyzing the captured images, Harvey can determine changes in rotation and position of the target.

The Office Action asserts that Harvey teaches the use of a laser base station and the tag tracking system determining the angular position of the tag with respect to the laser base station. However, 1) Harvey's laser system does not scan the laser beams. Each laser beam is a fixed laser stripe projector (H, C2, ll. 31-35). As the target rotates about some of its axis, the projection of the laser stripes on the target changes. By monitoring the change of the laser stripes on the target, Harvey is able to determine the angle of rotation of the target itself. In addition, Harvey determines translation by detecting concurrent movement of dots on the target. For example, one of Harvey's

embodiments is to measure how an automobile's wheels turn on its axis. It does this by placing a target on the wheel and monitoring the target's motion responsive to tests on the wheel (for example, if the front wheel of a car is under test, and as the steering wheel is turned, the front wheels of the car turn. Harvey can measure the amount the front wheel turns responsive to the steering wheel being turned).

Harvey's beams do not move. Thus, Harvey does not scan the laser beams, nor does Harvey determine the angle of the target with respect to the laser base station. Instead, Harvey can determine the angle of the target with respect to the coordinates defined by the laser stripes.

Thus, contrary to Office Action, Harvey does not teach or suggest a tag tracking system that determines angular position of the tag with respect to the laser base station.

### C. Analysis

A prima facie case of obviousness is established when the Examiner provides one or more references that were available to the inventor and that teach a suggestion to combine or modify the references, the combination or modifications of which would appear to be sufficient to have made the claimed invention obvious to one of ordinary skill in the art.

Applicant respectfully traverses the 103(a) rejections as to the amended claims as a prima facie case of obviousness has not been made.

Nothing in Bowers or Harvey separately or combined teach or suggest a combination or modification that would make the invention obvious to one of ordinary skill in the art.

With regard to **claims 1 and 3**: Harvey cannot be combined with Bowers to teach the claimed invention because the angle of the tag in the invention is not relevant. When the tag in the invention is exposed to the scanning laser beam from the laser base station, it causes the angular position of the scanning laser beam with respect to the laser base station to be captured. Thus, once the angular position is captured, the item attached to

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the tag is known to be on the radial from the base station specified by the angular position. A combination of Bowers and Harvey would be inoperable. Thus, one skilled in the art would not find a suggestion to combine Bowers and Harvey and claims 1 and 3 must be patentable.

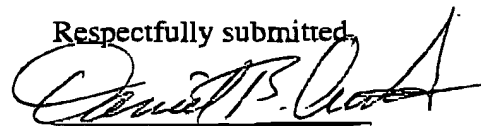
With regard to claims 4 and 9: Claim 4 depends on and further limits claim 1 and thus is also patentable. Claim 9 depends on and further limits claim 3 and thus is also patentable.

With regard to claims 5-8 and 10-13. Claims 5-8 depend on and further limit claim 1 and thus are patentable. Claims 10-13 depend on and further limit claim 3 and thus are patentable

Since all rejections, objections and requirements contained in the outstanding official action have been fully answered or traversed and shown to be inapplicable to the present claims, it is respectfully submitted that reconsideration is now in order under the provisions of 37 CFR §1.111(b) and such reconsideration is respectfully requested. Upon reconsideration, it is also respectfully submitted that this application is in condition for allowance and such action is therefore respectfully requested.

Should any additional issues remain, or if I can be of any additional assistance, please do not hesitate to contact me at (650) 812-4259.

Respectfully submitted,



Daniel B. Curtis  
Attorney for Applicants  
Reg. No. 39,159  
(650) 812-4259  
dbcurtis@parc.com



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Washington, D.C. 20231

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Typed or printed name of person signing this certificate

Lisa Andreasen

Signature:

Lisa Andreasen

## PATENT APPLICATION

Attorney Docket No. D/98588

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: **Edward A. Richley et al.**

Application No.: **09/448,088**

Group Art Unit: **2876**

Filing Date: **11/23/1999**

Examiner: **Le, Uyen Chau N.**

Title: **LASER LOCATING AND TRACKING SYSTEM FOR EXTERNALLY ACTIVATED TAGS**

Commissioner for Patents

Washington, D. C. 20231

**37 CFR 3.73(b) STATEMENT RE:  
REVOCATION OF PRIOR POWER OF ATTORNEY  
AND GRANT OF NEW POWER OF ATTORNEY BY ASSIGNEE**

On behalf of Xerox Corporation, the Assignee of record of the entire interest in the application identified above (the assignment of which, under 37 CFR 3.73(b), was recorded on 3/1/2000 on reel 10708 and frame 12, I hereby revoke all previous powers of attorney given in the above-identified application, and appoint the following registered practitioners to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

<b>Mark Costello,</b>	<b>Reg. No. 31,342;</b>	<b>Nola Mae McBain,</b>	<b>Reg. No. 35,782;</b>
<b>Ronald F. Chapuran,</b>	<b>Reg. No. 26,402;</b>	<b>Daniel B. Curtis,</b>	<b>Reg. No. 39,159;</b>
<b>Eugene O. Palazzo,</b>	<b>Reg. No. 20,881;</b>	<b>Kent M. Chen,</b>	<b>Reg. No. 39,630;</b>
<b>Kevin R. Kepner,</b>	<b>Reg. No. 32,145;</b>	<b>Linda M. Robb</b>	<b>Reg. No. 41,273.</b>
<b>Elizabeth F. Harasek,</b>	<b>Reg. No. 28,850;</b>		

Please direct all telephone calls to:

Daniel B. Curtis at (650) 812-4259.

Please address all correspondence to:

Patent Documentation Center  
Xerox Corporation  
100 Clinton Ave. S., Xerox Sq. 20<sup>th</sup> Floor  
Rochester, NY 14644



Signature of Agent Authorized To Act On Behalf of The  
Assignee Xerox Corporation

Richard B. Domingo

Agent Authorized To Act On Behalf of The Assignee  
Xerox Corporation (A delegation of authority to the Agent  
to act on behalf of Xerox Corporation is attached.)

Telephone No. (650) 812-4269

Date: 4/9/03

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